

A B S T R A C T

A vertical heat processing apparatus includes a process chamber (5) defining a process field (A1) configured to accommodate a plurality of target substrates (W) supported at intervals in a vertical direction. The apparatus further includes a heating furnace (8) surrounding the process chamber (5) and including an electric heater (15), and an electric blower (16) configured to send a cooling gas into the heating furnace (8). A control section (22) executes, in order to converge the process field (A1) to a target temperature, performing power feeding to the heater (15) to heat up the process field (A1) to a predetermined temperature immediately below the target temperature, and at a time point when the process field (A1) reaches the predetermined temperature, decreasing the power feeding to the heater (15), and supplying the cooling gas from the blower (16) to forcibly cool the process field (A1).